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**INFORMATION HANDLING SYSTEM EXPANDABLE BLANK CARD  
INSERT SYSTEM AND METHOD**

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**BACKGROUND OF THE INVENTION**

**Field of the Invention**

The present invention relates in general to the field of information handling  
system card inserts, and more particularly to an expandable blank card insert system  
10 and method.

**Description of the Related Art**

As the value and use of information continues to increase, individuals and  
businesses seek additional ways to process and store information. One option  
available to users is information handling systems. An information handling system  
15 generally processes, compiles, stores, and/or communicates information or data for  
business, personal, or other purposes thereby allowing users to take advantage of the  
value of the information. Because technology and information handling needs and  
requirements vary between different users or applications, information handling  
systems may also vary regarding what information is handled, how the information is  
20 handled, how much information is processed, stored, or communicated, and how  
quickly and efficiently the information may be processed, stored, or communicated.  
The variations in information handling systems allow for information handling  
systems to be general or configured for a specific user or specific use such as financial  
transaction processing, airline reservations, enterprise data storage, or global  
25 communications. In addition, information handling systems may include a variety of  
hardware and software components that may be configured to process, store, and  
communicate information and may include one or more computer systems, data  
storage systems, and networking systems.

Information handling systems are adaptable to perform a number of different functions. One convenient way to provide additional functions to an information handling system is to use external cards adapted to support desired functions. An external card inserts into a card bay having a connector that interfaces the external card with the information handling system through a standard format, such as is defined by the PCMCIA standard. For example, portable information handling systems often accept a wireless network card in a PCMCIA bay to enable wireless network communications. The PCMCIA standard defines the size and layout of the external card and information handling system bay connectors so that power, control and data are exchanged in a defined manner. Standardized card and connector sizes allow manufacturers to offer desired functionalities by incorporating functions into a standard card that inserts into any standard compliant information handling system. Typically, portable information handling systems include two stacked PCMCIA bays. To protect the bay connectors from contaminants, blank cards are sometime inserted in the bays to block entry of contaminants into the bays, such as during shipping from a manufacturer to a purchaser of an information handling system.

One difficulty with standardized external cards is that some functions include components that do not readily fit in a defined bay slot. For example, one function proposed for external cards is a rotational storage media, essentially a miniature hard disc drive that inserts into a card bay. However, the rotational media tends to use more bay room than is typically need for other types of functions, such as wireless networking cards. A follow-on proposal to the PCMCIA standard provides for varying use of bay space with different sized external cards by placing two bays in a side-by-side horizontal configuration. The horizontal bay configuration allows an external card to interface with a single bay connector but use the space of the adjacent bay for components that will not fit in a single bay, such as an external card rotational storage media. However, external cards that have a variable width are often difficult to securely couple in a bay since support between the two bays is sacrificed to allow room for over-sized external card components. For instance, during shock and vibration testing, external card configurations that do not completely fill both adjacent horizontal bays are susceptible to being dislodged. Dislodging of a card during

operation typically results in failure of the function performed by the card and can result in damage to the card or the bay connector.

## **SUMMARY OF THE INVENTION**

Therefore a need has arisen for a system and method which adjusts an  
 5 information handling system external card bay size to securely couple external cards of varying size within the bay.

In accordance with the present invention, a system and method are provided which substantially reduce the disadvantages and problems associated with previous methods and systems for coupling external cards within an information handling  
 10 system external card bay. An external card blank adjusts in width to fill the gap left in an external card bay of an information handling system that accepts external cards of varying width.

More specifically, an external card blank has a base section 32 that couples with a connector of an information handling system external card bay having two  
 15 adjacent horizontally aligned connectors. A body section extends from the base section along a side wall of the external card bay. An adjustable member extends from the body section into the external bay by an adjustable distance to engage an external card inserted in the adjacent connector and to thus maintain the external card against the opposing side wall of the external card bay. In one embodiment, the  
 20 adjustable member rotationally couples to the body section with a spring that biases the adjustable member into the external card bay but allows an wide external card to push the adjustable member into a cavity of the body section and obtain support from the edge of the body section.

The present invention provides a number of important technical advantages.  
 25 One example of an important technical advantage is that external cards having variable widths are securely coupled within an information handling system. The variable-sized external card blank expands or contracts to fill any gap between an inserted external card and the supporting side walls of the card bay so that movement of the external card is restricted within the card bay. By supporting the external card

and restricting its movement, the card blank reduces the risk that shocks and vibrations applied to an information handling system will separate external card and bay connectors. Less risk of connector separation improves reliability in providing the function of the external card to the information handling system and decreases physical damage inflicted on card and bay connectors when a card is forced free from a connector, such as with rotational motion of the connectors relative to each other.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

The present invention may be better understood, and its numerous objects, features and advantages made apparent to those skilled in the art by referencing the accompanying drawings. The use of the same reference number throughout the several figures designates a like or similar element.

Figure 1 depicts an information handling system having an external card bay with horizontally-aligned connectors;

Figure 2 depicts an external card blank having an adjustable width;

Figure 3 depicts a rotational media external card aligned to insert in an external card bay having its width adjusted with an external card blank;

Figure 4 depicts a rotational media external card secured in an external card bay with an external card blank; and

Figure 5 depicts a wireless networking card secured in an external card bay with an external card blank.

### **DETAILED DESCRIPTION**

An information handling system external card bay width adjusts to secure external cards of varying width with an external card blank that fills gaps that otherwise would remain after insertion of an external card of a given width into an external card bay of a greater width. For purposes of this disclosure, an information handling system may include any instrumentality or aggregate of instrumentalities operable to compute, classify, process, transmit, receive, retrieve, originate, switch,

store, display, manifest, detect, record, reproduce, handle, or utilize any form of information, intelligence, or data for business, scientific, control, or other purposes. For example, an information handling system may be a personal computer, a network storage device, or any other suitable device and may vary in size, shape, performance, functionality, and price. The information handling system may include random access memory (RAM), one or more processing resources such as a central processing unit (CPU) or hardware or software control logic, ROM, and/or other types of nonvolatile memory. Additional components of the information handling system may include one or more disk drives, one or more network ports for communicating with external devices as well as various input and output (I/O) devices, such as a keyboard, a mouse, and a video display. The information handling system may also include one or more buses operable to transmit communications between the various hardware components.

Referring now to Figure 1, a top perspective view of an information handling system 10 depicts one embodiment of an external card bay 12 having a pair of horizontally-configured connectors 14. The two bay connectors 14 each simultaneously holds a narrow configuration external card having a width of approximately 34 millimeters, or only one connector 14 is used to hold wide configuration external cards having a width of greater than 34 millimeters but less than the total width of external card bay 12. Connectors 14 interface with information processing components disposed on a motherboard 16, such as a CPU 18, chipset 20 and memory 22. Software or firmware running on CPU 18 or chipset 20 interacts with software or firmware on an external card 24 to enable desired functions, such as storage of information on a rotational media located within an oversized rectangular portion of external card 24. External card 24 inserts into external card bay 12 and electronically couples to a bay connector 14 with a card connector 26. When completely coupled, bay connector 14 and card connector 26 hold external card 24 in place against a side wall 28 of external card bay 12. However, for wide configuration external cards 24, such as the 54 millimeter rotational storage media depicted by Figure 1, shock or vibration applied to information handling system 10 sometimes causes rotational movement of external card 24 within external card bay 12, resulting in failed communication and bent connector pins.

Referring now to Figure 2, an external card blank 30 is depicted that adjusts its width to fill gaps in an external card bay that result from insertion of external cards of variable width. External card blank 30 has a base section 32 that is adapted to fit into an external card bay connector 14. A body section 34 extends from the base section and couples with an adjustable width support member 36. Member 36 extends from body section 34 into the external card bay to engage against an external card inserted in the bay adjacent to external card blank 30. The width of an external card plus the widths of body section 34 and the extended portion of member 36 equal the total width of the external card bay so that an external card next to external card blank 30 is held in position. Member 36 adjust the total width of external card blank 30 by extending from or retracting into a cavity 38 housed within body section 34. In the depicted embodiment, member 36 adjusts width of external card blank 30 by rotating into and out of cavity 38 with a spring 40 biasing member 36 to extend out from cavity 38. In an alternative embodiment, member 36 acts as a plunger that laterally extends from and retracts into body section 34.

Referring now to Figure 3 a top perspective view depicts insertion of a rotational storage media external card 24 into external card bay 12 with an external card blank 30 used to securely couple card connector 26 to bay connector 14. External card 24 inserts to engage the left side wall 28 of bay 12 that guides connector 26 into connector 14. As external card 24 engages member 36, the bias provided by spring 40 is overcome, resulting in retraction of member 36 within body section 34 so that the inner edge of external card 24 engages against body section 34. Body section 34 in turn engages against the right side wall of bay 12 so that both edges of external card 24 receive support from the opposing side walls 28. Figure 4 depicts external card 24 securely coupled within external card bay 12 so that shock and vibration applied to an information handling system is less likely to separate connectors 26 and 14 since the movement of external card 24 is restricted within external card bay 12 by engagement of side walls 28. In one embodiment, external card 24 and external card blank 30 are assembled into a single piece before insertion into external card bay 12.

Adjustment of the width of external card blank 30 is selectable to adapt to various combinations of widths of external cards and external card bays by selecting the size and degree of member 36 that extends into external card bay 12. In the

embodiment depicted by Figure 4, external card 24 is a rotational storage media having a width of approximately 54 millimeters and external card bay 12 is configured to receive two horizontally disposed 34 millimeter cards for a total width of approximately 68 millimeters. Body section 34 of external card blank 30 has a  
5 width of approximately 14 millimeters so that member 36 completely retracts to allow the inner side of external card 24 to engage against body section 34. As is depicted by Figure 5, insertion of a narrow card, such as the depicted wireless networking card, leaves member 36 extended to selectively adjust the width of external card blank 30 so that the gap between the inner edge of external card 24 and side wall 28 is filled.  
10 Member 36 extends a distance so that the width of external card blank 30 equals the width of external card 24, approximately 34 millimeters.

Although the present invention has been described in detail, it should be understood that various changes, substitutions and alterations can be made hereto without departing from the spirit and scope of the invention as defined by the  
15 appended claims.